

**Date:** September 22, 2009

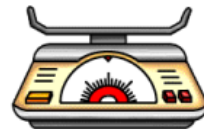
**Title:** Proportions and Measurement Systems

**Objective:** Apply proportions to the "real world".

**IN:**

If Mr. Basile beat Mrs. Evans playing Scrabble 75% of the time by scoring 165 points, how many total points were earned by both of them while playing Scrabble?

If you ever plan on visiting another country, you will have to convert your dollars and possibly your units of measurement (inches, centimeters, etc) to theirs.



In some places gas is sold by the liter instead of gallon, distance is measured in kilometers instead of miles, and vegetables are sold by the kilo (kilograms) instead of by the pound.

In the upcoming investigation, you will find a ratio to help you convert inches to centimeters and centimeters to inches.



**Ratios will help us  
with lots of  
conversions!**

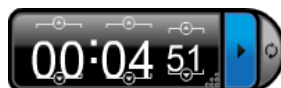
First step: Copy down the following table:

Object	Measurement in inches	Measurement in centimeters



Object	Measurement in inches	Measurement in centimeters

Second step: Measure the length or width (it doesn't matter which) of 6 items. You could measure your desk, a calculator, a pencil, a notebook, etc. Record your data in the table.



## Graphing calculator time!

We will be entering the data from your table into your calculator. Follow the steps below (it will be shown on the smart board as well).

1) Hit the stat button and you will see this...

```

2011 CALC TESTS
1:Edit...
2:SortA(
3:SortD(
4:ClrList
5:SetUpEditor
  
```

2) Hit the edit button so you will see this.

L1	L2	L3	1
██████	-----	-----	
L1(1) =			

3) If you have numbers in the list, push the up button until the L1 is highlighted like so and hit clear and enter.

L1	L2	L3	1
9 6 8 9 10 -----	-----	-----	
L1 = {9, 6, 8, 9, 10}			

4) Put your measurement in inches in the first column and the measurements in centimeters in the second column. Each time you enter a number, hit enter. To get to the second column, hit the right button. For example, if your table was as follows:

Object	Measurement in inches	Measurement in centimeters
car	250 in	650 cm
Dry-erase board	80 in	203 cm
Water bottle	20 in	50 cm
Computer	36 in	91 cm
Cart	70 in	178 cm
Planner	12 in	30 cm

L1	L2	L3	1
250 80 20 36 70 12 ██████	-----	-----	
L1(?) =			

5) Hit the right arrow to go to the third column (L3) and hit the up arrow until L3 is highlighted like the picture to the left.

L1	L2	L3
250	650	-----
80	203	
20	50	
36	91	
70	178	
12	30	
-----	-----	
L3 =		

L1	L2	L3
250	650	-----
80	203	
20	50	
36	91	
70	178	
12	30	
-----	-----	
L3 = L2 ÷ L1		

6) Hit the second button and the number 2, then the division sign, then the second button and the number 1. This will end up looking like the picture to the right

7) Now hit enter. Your calculator will have given you all of the ratios in decimal form.

What do the numbers in L3 represent?

What do you notice about all of the numbers in L3?

Should they be the same?

Why aren't they?

What "representative" ratio should we choose?

Open your planner to page 25. How close were we?

9) Using our new ratio, set up a proportion and convert each of the following lengths:

a) 215 centimeters = x inches



b) 2 centimeter = x inches



c) 1 inch = x centimeters



d) How many centimeters high is a doorway that measures 80 inches?



Time to get to work!

**Out:**

**Make up your own proportion problem that has to do with percentages and something you can get on sale at the grocery store. Include your work and the answer.**

Homework:  
Page 111  
#1-5, 8 and 9

**Summary:**

**Write the steps it takes to create a list in your graphing calculator.**